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PHA 4159.26 (3203/1A)  
PATENT

16245

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of Michael S. South et al.

Art Unit 1624

Serial No. 10/009,447

Filed April 3, 2002

Confirmation No. 1709

For SUBSTITUTED POLYCYCLIC ARYL AND HETEROARYL PYRIMIDINONES  
USEFUL AS ANTICOAGULANTS

January 29, 2004

COMMISSIONER FOR PATENTS  
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In accordance with 37 C.F.R. 1.97 and 1.98 and MPEP 609, and in compliance with the

\* duty of disclosure set forth in 37 C.F.R. 1.56, applicants submit copies of the references listed on the attached PTO/SB/08A for consideration by the Patent and Trademark Office in the above-entitled application and to be made of record therein.

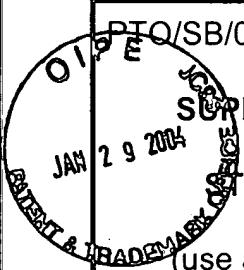
\* A check in the amount of \$ 180.00 is enclosed to cover the fee specified in 37 CFR §1.17(p) for submission of this Information Disclosure Statement.

Respectfully submitted,

Bradley S. Schammel, Reg. No. P54,667  
SENNIGER, POWERS, LEAVITT & ROEDEL  
One Metropolitan Square, 16th Floor  
St. Louis, Missouri 63102  
(314) 231-5400

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**SUPPLEMENTAL INFORMATION  
DISCLOSURE  
STATEMENT BY APPLICANT**  
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|                      |   |    |   | <b>Complete if Known</b>        |                       |
|----------------------|---|----|---|---------------------------------|-----------------------|
| Application Number   |   |    |   | 10/009,447                      |                       |
| Filing Date          |   |    |   | April 3, 2002                   |                       |
| Confirmation Number  |   |    |   | 1709                            |                       |
| First Named Inventor |   |    |   | Michael S. South                |                       |
| Group Art Unit       |   |    |   | 1624                            |                       |
| Examiner Name        |   |    |   | Venkataraman<br>Balasubramanian |                       |
| Sheet                | 1 | of | 2 | Attorney Docket No.             | PHA 4159.26 (3203/1A) |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY |
|--------------------|-----------------------|----------------------|--------------------------------------|---|---|
|                    |                       | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |
|                    | 58                    | 4,489,096            | B1                                   | Terao et al.                                    | 12-18-1984  |
|                    | 59                    | 4,851,413            | B1                                   | Terao et al.                                    | 07-25-1989  |
|                    | 60                    | 4,992,469            | B1                                   | Ozawa et al.                                    | 02-12-1991  |
|                    | 61                    | 5,008,267            |                                      | Katakami, et al.                                | 04-16-1991  |
|                    | 62                    | 5,304,658            | B1                                   | Terao et al.                                    | 04-19-1994  |
|                    | 63                    | 5,741,819            | B1                                   | Illig et al.                                    | 04-12-1998  |
|                    | 64                    | 6,180,627            | B1                                   | Blagg et al.                                    | 01-30-2001  |

**FOREIGN PATENT DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | Foreign Patent Document |                     |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document<br>MM-DD-YYYY | T <sup>6</sup> |
|--------------------|-----------------------|-------------------------|---------------------|--------------------------------------|---|---|----------------|
|                    |                       | Office                  | Number <sup>4</sup> | Kind Code <sup>2</sup><br>(if known) |   |   |                |
|                    | 65                    | DE                      | 198 51 421          | A1                                   | Boehringer Ingelheim Pharma KG                  | 05-11-2000  | A              |
|                    | 66                    | EP                      | 0 354 495           | A1                                   | Godecke Aktiengesellschaft                      | 02-14-1990  | A              |
|                    | 67                    | WO                      | 98/09987            | A1                                   | Biochem Pharma, Inc.                            | 03-12-1998  |                |

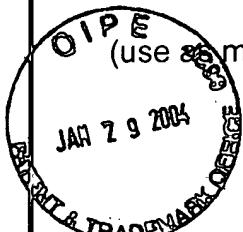
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<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached or place an "A" here if English language abstract is attached..

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Sheet **2** of **2** Attorney Docket No. **PHA 4159.26 (3203/1A)**

|  |    |    |          |    |                               |            |  |
|--|----|----|----------|----|-------------------------------|------------|--|
|  | 68 | WO | 99/43660 | A1 | Neurogen Corporation          | 09-02-1999 |  |
|  | 69 | WO | 99/48892 | A1 | Merck & Sharp & Dohme Limited | 09-30-1999 |  |

**OTHER ART - NON PATENT LITERATURE DOCUMENTS**

|                    |                       |  |                |
|--------------------|-----------------------|--|----------------|
| Examiner Initials* | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>6</sup> |
|                    | 70                    | COBURN, C.A., "Small-molecule direct thrombin inhibitors 1997-2000." Expert Opinions on Therapeutic Patents, 2001, 721-738, Vol. 11, No. 5   |                |
|                    | 71                    | XP-002182132 - DARVAS, et al., "Investigation of the Common Mechanism of Action of Antibacterial Compounds Containing .gamma.-pyridone-.beta.-carboxylic acid Structure by Principal Component." Arzneim.-Forsch., 1979, pp. 1334-1339, Vol. 29, 9.            |                |
|                    | 72                    | XP-002172033 - KOHAMA, et al., "Preparation of Piperidinyloxyacetylaminobenzoylalanine Derivatives and Analogs as Antithrombotics." JP 07,233,148.   |                |
|                    | 73                    | XP-002187583 - MOERNER, Hoppe-Seyler's Z. Physiol. Chem., 69, 1910; 357.   |                |
|                    | 74                    | PATEL, et al., "Directed Aminomethylation of 3-Hydroxy-3(1H)-pyridinones and 3-hydroxy-4(1H)-pyridinones: Synthesis of iso-Deferiprone." Tetrahedron, 1996, pp. 1835-1840, Vol. 52, No. 5.   |                |
|                    | 75                    | XP-002182410 - TRECOURT, et al., "First Synthesis of (+)-harzianopyridone by Metalation of Polysubstituted O-pyridylcarbamates." J. Heterocycl. Chem., 1995, pp. 1117-1114, Vol. 32, No. 4   |                |
|                    | 76                    | TULINSKY, et al., "Novel Asymmetric Synthesis of Atropisomeric 6-Aryl Pyrazinones via an Unusual Chirality Transfer Process." J. Org. Chem., 1999, pp. 93-100, Vol. 64, No. 1.   |                |

|                    |  |                 |  |
|--------------------|--|-----------------|--|
| Examiner Signature |  | Date Considered |  |
|--------------------|--|-----------------|--|

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<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached or place an "A" here if English language abstract is attached..